

# Army Participation on Product Data Related Non Government Standards Bodies

30 Aug 00

*Presented by:*

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*AMSAA*

# Guidance

“For the participation in standards groups, I would like you all to explore the possibility of (in the absence of money) a team coverage approach. In this approach we would jointly determine what bodies are important and essentially divide them up so that they would all be covered and resources required would be minimum.”

Source: Email 23 Aug 00, from  
AMC Acting Principle Deputy for Technology, Ms Renata Price

# PD FCG Develop Position on Importance of Participation on Product Data Related Non Government Standards Bodies

- Prepare background on each Standards Body
- Prepare estimate of Level of Effort
  - Full time equivalents (FTEs) Salary
  - Travel
  - Skills Mix required
- Assess importance or priority
- Determine impact if Army is not a player
- Propose position as a white paper, proposals, or other?

# Draft

## Summary of Resources for Participation on Product Data Related Non Government Standards Bodies

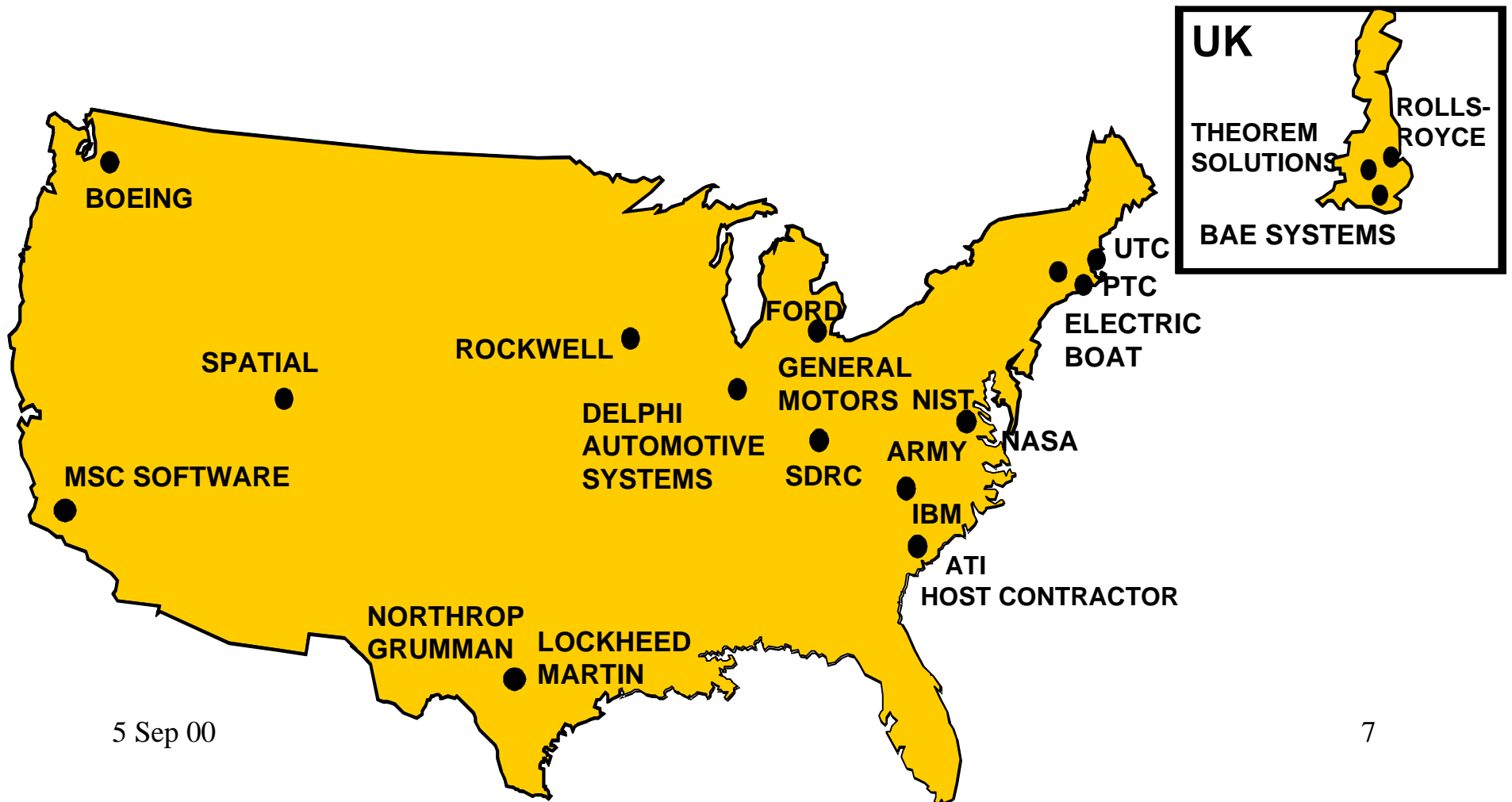
Non Government Standards Bodies	Salary (FTE)/ Year	Travel Funds/ Year	Skills Mix	Priority	Impact if AMC Non Player
STEP PDES, Inc.	+		Technical Management	High	
G-33 Committee - CM/DM GEIA CM committees EIA Standard - 836 ANSI/EIA Standard - 649A			Technical	High	
GEIA DM committees EIA Standard - 859			Technical	High	
Drawing Practices (DRPR)			Technical	High	
Subtotals					

# Army Membership in PDES Inc.

# What is PDES Inc.?

- PDES = Product Data Exchange using STEP
- (PDES) Inc. is an international government/industry consortium accelerating the development and implementation of STandard for the Exchange of Product model data (STEP) to improve product quality, increase flexibility, reduce product cycle time and reduce costs

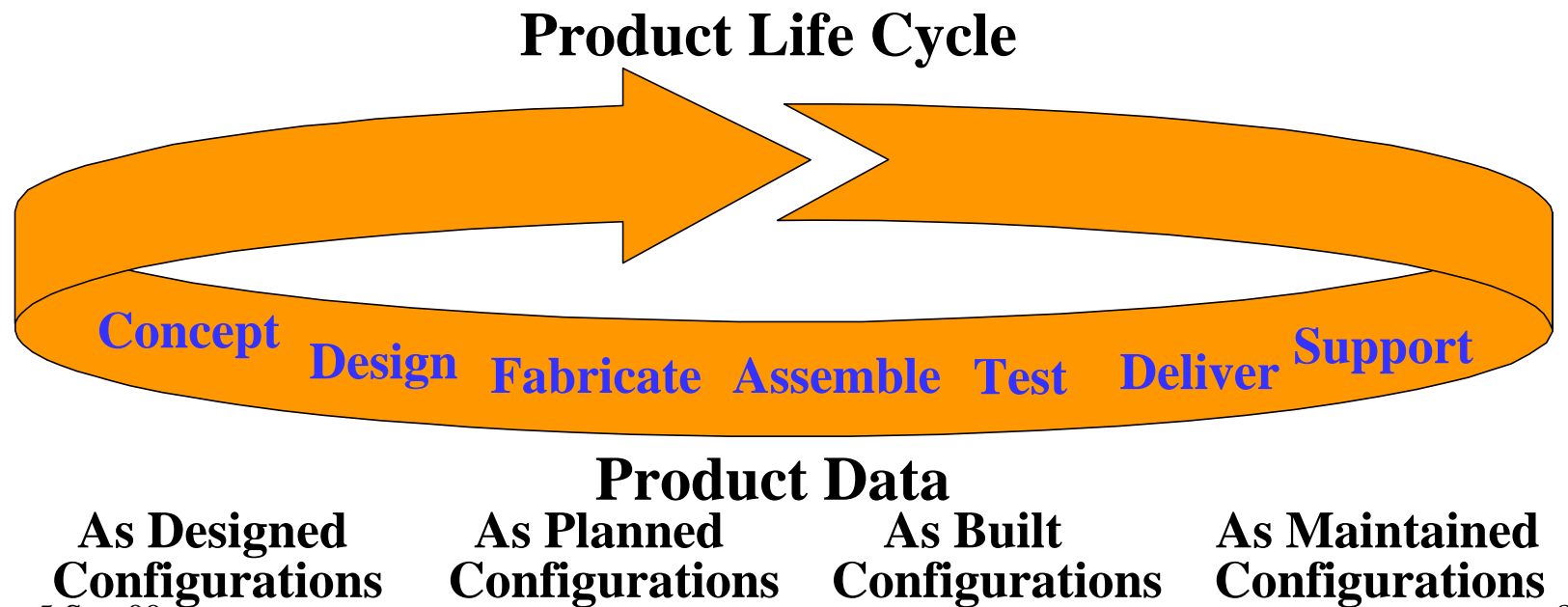
# PDES, Inc. Members



5 Sep 00

# What is STEP?

**STEP is an international standard (ISO 10303) that provides an unambiguous, computer interpretable definition of the physical and functional characteristics of a product throughout its life cycle**





# Role of STEP

- Enables consistent and timely data sharing between customers, prime vendors and suppliers
- Enables complete and accurate data exchange and use between functions (Design, Analysis, Mfg, Product Support)
- Enables reuse of design, planning and manufacturing data between different designs
- Can be a solution to access of long-term data archives

# PDES, Inc. Approach

- Develop and implement member company-defined work tasks
- Organize the work into projects with deliverables and schedules
- Use contributed company personnel
- Work with the established National and International standards structure
- Establish formal relationships with other significant organizations, programs and consortia
- Pursue funding for complementary projects

# STEP Products

## **CURRENT:**

- STEP Application Protocols (AP) for exchange between CAD systems
  - Each AP addresses needs of different types of parts
- STEP Translators for CAD software
- PDM Schema

## **FUTURE:**

- Expand STEP to PDM systems
- Expand STEP web applications
  - STEPml - library of XML specifications for STEP models
- More Information at <http://pdesinc.scra.org/>

# Army Involvement

- Army member of PDES, Inc. since Jul 93.
- Current annual membership requirements:
  - 
  -
- Army “work-in-kind” support has previously come from CECOM-Tobyhanna Army Depot, and OSC-Watervliet Arsenal.

# Army Worktasks

- **On-going:**
  - AP 210 Test Suite prove out: Estimated at less than for current reporting period. Performer Tobyhanna Army Depot
- **Prior Years:**
  - Support AP 210 development
  - Support AP 203 development

# Current Status of Army Involvement

- Army in arrears for hrs of work-in-kind effort
- Army membership expires 30 Oct 00
- If Army is to continue its membership in PDES Inc it must provide the required work-in-kind support.
- Must create synergy between PDES Inc and Army product data exchange goals

# Continued Membership gives the Army:

- Opportunity to work closely with industry customers/suppliers to leverage collective efforts
- Access to comprehensive vendor test bed (major CAD and PDM systems)
- Direct influence on setting the standard
- Allows for STEP product testing in a dynamic environment over the Internet
- Access to extensive lessons learned from STEP deployments in industry
- Insight into industry Enterprise Integration strategies
- Hands-on experience in using STEP tools and technology

# Recommended Course of Action

That Senior Engineers approve continuation of Army membership in PDES, Inc.-

- **PDES Inc. Executive Board Membership**
  - MSC attendance on 1 year rotation basis (CECOM first)
  - Two meetings per year (estimated 0.1 FTE per year)
- **Work-in-kind (2 FTEs)**
  - AMC buys-off our “arrears” condition ()
  - AMC pays annual fee for 1 FTE
  - AMC uses full-time support contractor to support PDES Inc ()
  - Review other on-going Army efforts that might qualify as PDES Inc. tasks (ex- STAMP, TIGER). Seek PDES Inc. concurrence.
  - MSCs propose new projects that meet both PDES Inc. criteria and Army goals



# Possible new PDES Inc. Worktasks

- **Common Product Data Management Model (PDMM)** - Create a schematic that depicts all the pieces of product data information and their relationship and/or dependency to each other. Can provide different views of the data set based on user functional needs.
- **Harmonization of Product Data Models** - Examine existing MIL-STD-2549 and PDM Schema product data models and work to resolve differences and voids.
- **Translators between CAD systems and BRL CAD** - Use STEP approach to establish translators to BRL CAD from to CAD systems used within AMC and it's vendor base. Can provide ARL, PEO/PM, and MSC lethality and survivability efforts with labor savings based on improved translations.
- **Others** - to be developed at PD FCG meeting, 30 Aug 00.

# Commitment

Senior Engineer approval of this recommendation means:

- HQ AMC support for PD FCG request for AMC central funding for new efforts and Executive Board membership
- MSC senior management allocation of MSC resources
- Long term commitment (minimum of 2 years)

# Results of Senior Engineers Meeting

(10 Aug 00)

- All agreed that we should continue our involvement with PDES, Inc, asking for funding from OSD and a concentrated effort by the MSCs to find work-in-kind that was acceptable to PDES, Inc.
- The group agreed:
  - The effort was important and should be supported,
  - Alternative sources of funding should be pursued:
    - ***OSD Standardization Program has a data call out for projects under***
    - Brigade Combat Team Transformation
    - Lou Kratz – ADCS funding
    - Henry Turner/Col Layman
  - If necessary, each command to ante up to cover 1 year's cost (preferably before the end of the fiscal year).
- **ACTION:** AMCRDA-TE will prepare correspondence to continue our involvement with PDES, Inc.

# Army Configuration Management Advisory Group (CMAG)

# Events leading to the CMAG

- Army decided it would publish an Army version of MIL-STD-2549 Rev A with a cancellation notice effective with the publication of Electronic Industries Alliance (EIA) 836 Configuration Management Data Interface Standard. Work through Government Electronics and Information Technology Association (GEIA).
- The Army would support GEIA effort to publish EIA 836
- DOD was proposing to cancel MIL-STD-973 and MIL-STD-2549 immediately.
- AIB voted that the Army should non-concur in the proposed DOD action to cancel MIL-STD-973.
  - DOD revised its cancellation notice for MIL-STD-2549 and MIL-STD-973 to be effective 30 Sep 00.
- MSC representatives were invited to the GEIA quarterly meeting in Providence, RI to decide whether the AMC should form the Army CMAG
  - ***Decision was YES!***

# Initial CMAG Tasking

- Prepare Data Item Descriptions (DIDs) to replace MIL-STD-973 DIDs
- Prepare an AMC version of MIL-STD-2549 Rev A
- Work with GEIA to develop EIA 836

# First CMAAG Meeting, 16 May

- Reviewed the history associated with MIL-STD-2549 and related documents.
- Reviewed known major issues with 2549 Rev A
- Defined Plan of Action
  - Strategy
  - Process & Schedule
  - Expected products & Assignments
- Set a schedule
  - Meetings: 12 - 16 Jun (Warren, MI), 14 - 18 Aug (Huntsville, AL), 14 Sep Teleconference
  - Final publication: Target is 30 Sep 00

# Status of Tasks

- MIL-STD-973 DIDs
  - Replacement DIDs have been prepared and reviewed by the CMAG.
  - They are now being coordinated with the other services. Check for status at web site <http://qa.pica.army.mil/stdz/lees.html>
- AMC-STD-2549 Rev A
  - CMAG members are working to complete drafts of their sections that were reviewed at the August mtg
- Work with GEIA on EIA 836
  - CMAG members have been working with and are having a significant influence on the EIA 836 effort
- Effort on schedule for Sep 00 completion



# Results of Senior Engineers Meeting

(10 Aug 00)

- Mr. Knowles indicated there had been some discussion on this issue with Mr. Rao, TACOM. AMC has agreed to send a memo to TACOM formally requesting the ***current action officer be retained on the Configuration Management effort ...*** Indications were that TACOM would respond favorably to such a memorandum.
- **ACTION:** Jim Knowles, AMCRDA-TE, will prepare the memo to TACOM.

# Support for EIA Standard - 859 “Data Management”

# Status of EIA Standard 859 - Task Description

- This project will result in a draft consensus standard for the management of acquisition data ***exchange and access***.
- 4-layer architecture for information standards (business process, business objects to be exchanged or accessed, data elements, and transport mechanisms), this standard will address ***business processes and business objects*** in sufficient depth to be able to articulate guiding principles and agreed-to best practices.
- This standard will create a consistent set of ***data management process expectations*** without, at the same time, creating so much specificity as to constrain innovation.

## Status of EIA Standard 859

### Task Description (cont.)

- This will be an industry standard and thus will be a neutral reference that trading partners will have available when constructing voluntary trading partner agreements. It is ***not*** envisioned that the standard will itself be invoked on contracts.
- Development of this standard will required an estimated 18 months of time and effort, and will likely require some ***original research*** as opposed to simply building consensus.

## Status of EIA Standard 859

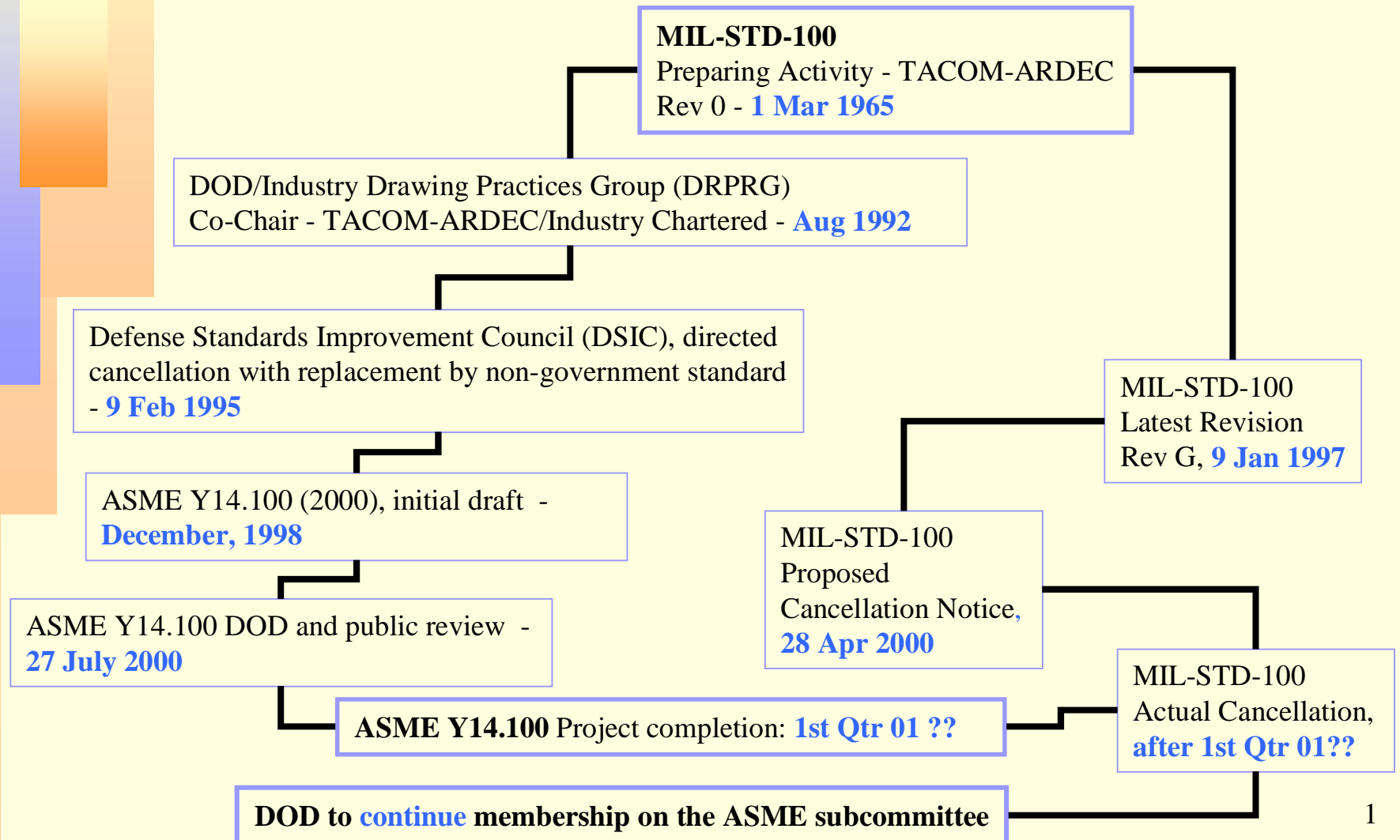
- Estimated Resources:
  - Similar effort as EIA - Standard 836
  - 18 Months duration:
    - 
    -
- Estimated Skills:
  - Acquisition Electronic Data Managers

# Cancellation of MIL-STD- 100G

## Engineering Drawing Practices

# *MIL-STD-100 and ASME Y14.100*

## *Process Map*



# Cancellation of MIL-STD-100G

## ASME Y14.100 (2000)

- Main body of standard: Basic Commercial Practices
- Appendix A, Tailoring guide (key to use of standard)
- Four non-mandatory appendices for other than basic commercial practices
- Appendices will essentially be the equivalent to the chapters of MIL-STD-100G.



# Cancellation of MIL-STD-100G

## NOTICE OF CANCELLATION

MIL-STD-100G, dated 9 June 1997, is hereby canceled. Future acquisitions should refer to the following, as applicable:

ASME Y14.100	ENGINEERING DRAWING PRACTICES (accepts basic commercial practice)
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ASME Y14.100 (APPENDIX A)	TAILORING
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ASME Y14.100 (APPENDIX B)	GENERAL DRAWING PRACTICES (invokes DOD standard practices)
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# CANCELLATION OF MIL-STD-100G

## NOTICE OF CANCELLATION (CONT)

ASME Y14.100  
(APPENDIX C)

DRAWING TITLES  
(DOD Practices)

ASME Y14.100  
(APPENDIX D)

NUMBERING CODING AND IDENTIFICATION  
(DOD Practices)

ASME Y14.100  
(APPENDIX E)

MARKINGS ON ENGINEERING DRAWINGS  
(DOD Practices)

# CANCELLATION OF MIL-STD-100G

## NOTICE OF CANCELLATION (CONT)

ASME Y14.24

TYPES and APPLICATIONS OF  
ENGINEERING DRAWINGS

ASME Y14.35M

REVISION of ENGINEERING DRAWINGS and  
ASSOCIATED LISTS

ASME Y14.34

ASSOCIATED LISTS

(Topics formerly covered in MIL-STD-100)

# Cancellation of MIL-STD-100G

In addition, the following will require revision:

- MIL-DTL-31000A - Technical Data Packages
- TDP Option Selection Worksheets
- Applicable Data Item Descriptions (especially at product level)

# MIL-DTL-31000B Changes - Section 6

- The inclusion of Appendices in ASME Y14.100 has allowed the cancellation of MIL-STD-100. Accordingly, basic engineering drawing practices for commercial applications are invoked through reference to ASME Y14.100, and for other than strictly commercial applications, for example DOD design activities, reference must be made to ASME Y14.100 and associated Appendices B through E, as applicable.
- It should also be noted that where there are fully justified DoD peculiar drawing practices requirements, such as the DoD system for Numbering, Coding and Identification, ASME Y14.100M **and applicable Appendices must be invoked. The use of the appendices to ASME Y14.100M will usually be associated with product drawings indicating a DoD activity as design activity and an end item requiring Government logistics support.**
- Application of ASME Y14.100, with or without Appendices, for contractual purposes will necessitate extensive tailoring to exclude unnecessary requirements.

# Data Item Descriptions Affected

- **DI-DRPR-81001B**      **Conceptual Design Drawings**
- **DI-DRPR-81002B**      **Developmental Design Drawings and Associated Lists**
- **DI-DRPR-81000B**      **Product Drawings and Associated Lists**
- **DI-DRPR-81003B**      **Commercial Drawings and Associated List**
- **DI-DRPR-81004B**      **Special Inspection Equipment Drawings and Associated Lists**
- **DI-DRPR-81008B**      **Special Tooling Drawings and Associated Lists**
- **DI-DRPR-81010B**      **Source Control Drawing Approval Request**
- **DI-DRPR-81011B**      **Drawing Number Assignment Report**
- **DI-CMAN-81012B**      **Proposed Critical Manufacturing Process Description**

# For More Information Contact:

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DOD Lead Standardization Activity for Area DRPR  
(Drawing Practices)

# Issue:

- **Question:** PD FCG asked to assess whether the cancellation of MIL-STD-100G is acceptable to Army or not
- **Answer:**
  - Cancellation achieves Acquisition Reform objective
  - ASME Y14.100 (2000) w/Appendices addresses DOD's needs
  - **Important** - Some education/training of Government users will be required to ensure correct use of the industry standard
  - ASME standards control and management process is very slow and cumbersome, but ensures that no changes will be made without DOD agreement.
  - **Important** - Will require DOD to continue membership on the ASME subcommittee to ensure we have a vote on any proposed changes.



# Recommendation

## That AMC Senior Engineers:

- Endorse the cancellation of MIL-STD-100G and adoption of ASME Y14.100 (2000) for drawing practices
- Endorse continued DOD/Service participation on joint government/ Non Government Standards Bodies and provide appropriate support/resources

# Results of Senior Engineers Meeting

(10 Aug 00)

- The Senior Engineers were asked to, and agreed to, endorse the cancellation of this standard and the adoption of ASME Y14.100 (2000) for drawing practices. This project also has a problem of pending retirement of the resident expert and possible an end to the support TACOM-ARDEC provides. They lack the TDA space and the funding needed to continue with this project. The additional issue of interfacing with Non Government Standards Bodies and Associations was raised (it is a Standardization Program requirement, but it is unfunded). The group provided no solutions
- Mr. Knowles indicated there had been some discussion on this issue with Mr. Rao, TACOM. AMC has agreed to send a memo to TACOM formally requesting ... ***that someone replace Mr. Tremblay on the Drawing effort after Mr. Tremblay retires.*** Indications were that TACOM would respond favorably to such a memorandum.
- **ACTION:** Jim Knowles, AMCRDA-TE, will prepare the memo to TACOM.

5 Sep 00

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# Support for ASME Y14.41

# Status of ASME Y14.41

- **Task Description** - TACOM-ARDEC has also been supporting the standards writing effort involving 3D Modeling, ASME Y14/SC41. TACOM-ARDEC currently furnishes the secretary for this committee. They have been meeting four times a year, usually for five days, twice at the same location as the Y14 Main Committee meeting but the week before or after. TACOM-ARDEC should seriously consider more interface with this subcommittee by sending a solid modeling expert to the meetings. ASME Y14.41 may, in the very near future, become one of the key DRPR standards.
- **Estimated Resources and Skills** - Presently Salary . Suggest that this be doubled in the future with inclusion of Solids Modeling Expert.

# Draft Summary of Resources for Participation in Drawing Practices (DRPR)

Non Government Standards Bodies	Level of Effort (FTE)/ Year Salary	Travel Funds/ Year	Skills Mix	Priority	Impact if AMC Non Player
American Society of Mechanical Engineers (ASME) - Y14 Main Committee - All Subcommittees - General Coordination on ASME related actions and coordination with EIA and NDIA	FTE  FTE  FTE		Technical	High	
ASME Y14.100	FTE		Technical	High	
ASME Y14.41	FTE		Technical	High	Solids Modeling may be one of key future stnds
NATO ad-hoc group (under AC301, SG-B) AEDP Engr Docs in Multinational Programs	FTE		Technical	High	

# Draft

## Summary of Resources for Participation on Product Data Related Non Government Standards Bodies

Non Government Standards Bodies	Salary (FTE)/ Year	Travel Funds/ Year	Skills Mix	Priority	Impact if AMC Non Player
STEP PDES, Inc.	+ FTE+ FTE		Technical Management	High	
G-33 Committee - CM/DM GEIA CM committees EIA Standard - 836 ANSI/EIA Standard - 649A	FTE		Technical	High	
GEIA DM committees EIA Standard - 859	FTE		Technical	High	
Drawing Practices (DRPR)	FTE		Technical	High	
Subtotals	FTE +				

# Next Steps

- Fund participation for Primary Office of Responsibility for each Standards Body
- In the absence of money use a team coverage approach
  - jointly determine what bodies are important
  - essentially divide them up so that
    - they would all be covered and
    - resources required would be minimum
- Document Approach
- Submit projects for funding to support approach
  - Alternative sources of funding should be pursued:
    - ***OSD Standardization Program has a data call out for projects under S: 1 Sep 00***
    - Brigade Combat Team Transformation
    - Lou Kratz – ADCS funding
    - Henry Turner/Col Layman

# Approach for Participation on Product Data Related Non Government Standards Bodies

<b>Non Government Standards Bodies</b>	<b>Salary (FTE)/ Year</b>	<b>Travel Funds/ Year</b>	<b>Office of Primary Responsibility (OPR)</b>	<b>Alternatives</b> A - OPR Prepare project submissions & get fully funded B - OPR Chair IPT
STEP PDES, Inc.	+ FTE+ FTE		CECOM	Plan B - IPT Supporting organizations?
G-33 Committee - CM/DM GEIA CM committees EIA Standard - 836 ANSI/EIA Standard - 649A	FTE		TACOM-ARDEC	Plan B - IPT Supporting organizations?
GEIA DM committees EIA Standard - 859	FTE		AMCOM	Plan B - IPT Supporting organizations?
Drawing Practices (DRPR)	FTE		TACOM-ARDEC	Plan B - IPT Supporting organizations?
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